Adolescents' mental health and well-being in developing countries

Adolescents' Mental Health and Well-being in Developing Countries: A Cross-Sectional Survey from Pakistan

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Abstract

Background: Despite global recognition of the significance of adolescents' mental health it remains a neglected area in research and health policy in Pakistan.

Aims: To examine the rates of depression and anxiety and to assess the level of well-being among Pakistani adolescents.

Methods: A cross-sectional sample of 1124 adolescents (age 11 – 18) was recruited from schools in Rawalpindi, Pakistan.

Results: 17.2% and 21.4% participants were identified to be probable cases of depression and anxiety respectively. The mean well-being score of the participants was 65.79 (S.D= 12.84). Girls were more anxious than boys. Depressive symptoms and well-being were significantly associated with age. Poor economic status, lower level of education and more negative life events were significantly associated with higher levels of depression and anxiety symptoms and poor well-being.

Conclusions: To our knowledge this is the first school based observational research exploring the rates of symptoms of depression and anxiety as well as well-being among 11-18 years old in Pakistan. This study concludes that mental health of Pakistani adolescents is an important area of public health concern and provides information for making policy level decisions regarding evaluation, prevention and intervention of mental health problems among adolescents in Pakistan.

Key words

Mental health, Depression, Anxiety, Well-being, Adolescents, Pakistan

1 Introduction

Depression and anxiety are the most common mental disorders (CMDs) among children and adolescents (Costello et al., 2003; Knopf et al., 2008). A European community based study conducted across eleven countries reported 29% of adolescents with depression and 32% with anxiety (Balazs et al., 2013). Population based prevalence estimates vary widely across studies and countries (Fleitlich-Bilyk, & Goodman, 2005; Lopez et al., 2006; Pillai et al., 2008). Notably, there has been evidence, albeit limited, that has suggested higher rates of CMDs among adolescents residing in low and middle-income countries (LMIC; Fleitlich-Bilyk, & Goodman, 2005), although inconsistent findings have also been reported (Lopez et al., 2006; Pillai et al., 2008). Since LMICs have a larger population of youth, the actual number of adolescents affected from CMDs would be considerably higher in these countries than in the high income countries (HICs; Lopez et al., 2006). Furthermore, treatment rates for mental disorders are particularly low in LMICs, where treatment gaps of more than 90% have been documented (Whiteford et al., 2015). However, despite the above most research has focused on HICs (Thapar et al., 2012).

Pakistan is a low middle income country which is the sixth most populous in the world (U.S Census Bureau, 2012) with half of its population under the age of 18 years (Rehman & Hussain, 2001). Adolescents alone form 23% of its total population which is the fifth largest (41 million) in the world (United Nations International Children's Emergency Fund UNICEF, 2011). Health, particularly mental health, is a severely neglected area in Pakistan (Tareen et al., 2009). Pakistan spends 2.5% of GDP for health (The World Bank, 2012) out of which only 0.4% is devoted to mental health (WHO, 2005). This large populous country has only three children and adolescent mental health services, and only six psychiatrists (Tareen et al., 2009) for a population of about seventy eight million (<18 years old) (UNICEF, 2011). Research is an equally neglected area. Between 1993 and 2004 only

108 Pakistani publications appeared in various indexed journals, not specifically focusing on mental health (Irfan, 2011). This marked underrepresentation of research publications from countries other than the UK, USA, other European countries has been observed in publication trends of high-impact medical journals (Sumathipala et al., 2004).

Large scale mental health surveys on Pakistani adolescents mental health are not available. A few small scale studies mainly focusing on the prevalence of general psychological distress in young children reported an estimate of around 9% (Javed et al., 1992). Prevalence of depression and anxiety among children visiting a psychiatric outpatient unit was found to be 9.5% and 11% respectively (Sarwat et al., 2009). However, these rates are not representative of the population as they were based on the very small subset of people who have access to mental health services. Another cross-sectional study on 12-19 years old school going adolescents found 17% prevalence of depression as assessed by DSM based *unstandardized* interview (Qidwai et al., 2010). Other developing countries in the region exploring rates of mental health problems report varying results. In India rates of depression and anxiety among adolescents are reported to be 18.4% (Bansal, Goyal, & Srivastava, 2009) and 25.8% (Nair et al., 2013) respectively. In Iran, rates of depression among adolescents vary from 14.77% (Janboozorgi, 2005) to 72% (Monirpour, 2005) across studies while anxiety disorders range from 6.8% to 85% (Zarafshan, Mohammadi, & Salmanian, 2015). The results of these studies show that there exist radical differences in the rates of mental disorders reported across studies because of the small sample sizes and varying characteristics between community and clinical samples. In the absence of adequate research in Pakistan, it is difficult to ascertain the prevalence of depressive and anxious symptoms among adolescents in Pakistan. However, according to a systematic review of literature, among adults the prevalence of depression and anxiety is said to be 34% in Pakistan (Mirza & Jenkins, 2004). Recent evidence proposes that it is imperative to take into account *both*

mental disorder and well-being when assessing mental health in order to attain a complete picture of an individual's well-being and functioning (Keyes & Lopez, 2002; Slade, 2010). The global community increasingly recognises the need for investing intensively in the overall well-being of adolescents (Laski, 2015). However, focus on well-being rather than ill health is lacking in current research in Pakistan.

Gender difference in depression and anxiety is fairly noticeable among adults in Pakistan (Mirza & Jenkins, 2004). However, there is very little research exploring gender differences in mental health among adolescents. Recent published evidence from LMICs have reported mixed results with some supporting that pubertal girls are more depressed and anxious than boys and this gender gap persists into adulthood (Grant, Compas, Thurm, McMahon, & Gipson, 2004; Grant et al., 2004). The gender and age interaction has been identified in various research studies where the burden of depressive and anxiety disorders increases sharply in ages 1–10 years and peaks at adolescence and early to middle adulthood (ages 10–29 years) (Whiteford et al., 2013).

The association between Socio-economic status SES and mental health has been extensively studied (Hudson, 2005). In adolescent populations, there has been evidence both supporting (Lemstra et al., 2008) and rejecting the hypothesised association between mental health and SES (Costello et al., 2003). Research has shown that low SES also increases the exposure to stressful life events (Stronks, Van De Mheen, Looman, & Mackenbach, 1998). In Pakistan however, higher rates of depression (Husain, Creed, & Tomenson, 2000) and anxiety (Rab, Mamdou, & Nasir, 2008) have indeed been associated with stressful life events among adults. There has been no empirical evidence available among adolescents. On the contrary, robust evidence is available supporting the association between negative life events and depression/anxiety among adolescents from the West (Pine et al., 2002; Beesdo et al., 2009) and other parts of the world (Unger et al., 2001).

1.1 Aims

The primary aim of the study was to estimate the prevalence rates of depression, anxiety and the level of well-being among adolescents in Pakistan. The secondary aim of the study was to explore the association between major demographic variables (age, gender, SES, stressful life events) and mental health outcomes in the sample.

2 Methods

This study employed a cross-sectional study design on a sample of 1124 adolescents (aged 11-18) recruited from 8 secondary schools in Rawalpindi, Pakistan.

2.1 Ethical considerations

The study was approved by the ethics committee of the University of Edinburgh, UK and Fatima Jinnah Women University in Pakistan. Formal permissions were obtained from the Federal Directorate of Educational Institutions (Cantonment/ Garrison) in Pakistan. Written permissions were also obtained from the principals of each participating schools. The principals of the schools acted as loco parentis. This was approved by the ethics committees. A written consent was also taken from each participant and they were informed about their right to refuse to take part in the study at any stage.

2.2 Sampling

The data for the current study was collected from secondary schools using multistage sampling technique. Schools were selected using *Active Data* for Excel Software from the list of schools given by Federal Directorate of Educational Institutions (Cantonment/ Garrison), Pakistan. Thirty-nine schools situated in Rawalpindi Cantonment (total population is 892000) were identified from the list. From these schools, eight schools were selected through randomization for the present study to gather the required sample size. School's participation rate was 100%. Participants were recruited from two co-education schools and six single sex schools (three for girls and three for boys).

According to the usual age of admission in Pakistani schools, classes 6-12 were selected to recruit adolescents of 11-18 years of age. Only one class per grade within a school was selected using the *Active Data for Excel* Software. With this procedure 1160 adolescents were eligible for participation in the study. Out of these, 1149 participants consented to take part resulting in a 99% response rate.

2.3 Study Procedure

Participants were approached during school hours. The study protocol along with the information sheet summarizing the purpose of the study and the consent forms were distributed to the participants. It was requested to complete the questionnaires in one sitting.

2.4 Measures

The following measures were used in this study

2.4.1 Demographic sheet. Demographic information included: gender, age, grade, parents' occupation, participant's relationship status and living arrangement.

2.4.2 Family affluence scale II (FAS II; Currie et al, 2004). FAS scale comprising of four items was used to assess socioeconomic status. A composite score was generated ranging from 0 to 9. Participants were then categorized into three family affluence groups: high (7–9 points), medium (4–6) and low (0–3). The psychometric properties of FAS II are good (Ravens-Sieberer et al., 2009; Torshieum et al., 2006; Currie et al., 2008). FAS II was translated into Urdu in the present study for use with the Pakistani population using Brislin's Back-translation procedure (1970). The Cronbach's alpha for FAS II scale on this sample was very low (0.48).

2.4.3 Life Events. To address life events 19 questions were selected from Child and Adolescent Self Harm in the Europe study. These items were developed particularly to be used for adolescents (CASE; O'Connor et al., 2009). The response options were scored as a three point likert scale ranging from No = 0, Yes, more than a year ago = 1, and Yes, in past 12 months = 2 scale. A composite life events score was generated. The range was 0 – 38.

CASE has previously been translated into Urdu and used among Pakistani adolescents (Mustaqeem, 2009). Cronbach's alpha on this sample was 0.67.

2.4.4 Hospital anxiety and depression scale (HADS; Zigmond & Snaith, 1983). It is a widely used tool for screening depression and anxiety with good test-retest reliability when used with adolescents (White et al., 1999). This scale consists of 14 items (7 for depression, 7 for anxiety). The participants respond on a scale of 0 to 3 based on their experience over the past week. The present study used the cut-off scores recommended by White and his colleagues (1999) for use with adolescent population. For depression, a score of 7 - 9 indicates 'possible depression' and a score of 10 and above indicates 'probable depression'. For anxiety sub-scale, a score of 9 -11 indicates 'possible anxiety' and a score of 12 and above suggests 'probable anxiety'. This two dimensional structure of HADS measuring depression and anxiety has been reported to be reliable (Bjelland et al., 2002). The present study used the Urdu translated version of HADS by Mumford et al. (1991), which has been used in previous studies and is reported to be reliable and valid for use with adult samples (Dodani & Zuberi, 2000; Ali et al., 1998; Mumford et al., 1991). The Cronbach's α reliability estimates of HADS in the current sample was 0.69 for anxiety sub-scale and 0.60 for depression sub-scale.

2.4.5 BBC well-being scale (Kinderman et al., 2011). It is a 24 item measure which assesses the psychological, physical and relationship well-being (Kinderman et al., 2011). The items are scored on a likert scale, 0= not at all to 4= completely. High score reflects higher well-being. The scale has demonstrated good internal consistency (α = .935) and concurrent validity (Pontin et al., 2013). In the present study, an item pertaining to satisfaction from sexual life was excluded as per the ethics committee's suggestion in consideration of the cultural context and age of the study participants. An Urdu version of BBC well-being scale was developed in the present study adhering to Brislin's (1970) back-

translation procedure with specific focus on semantic and conceptual equivalence. In this study, BBC well-being scale had a Cronbach's alpha of 0.90.

2.5 Statistical Analysis

Data was analysed using the Statistical Packages for Social Sciences version 19 (SPSS). All required statistical assumptions for the planned analyses were ensured prior to the main analysis. Where data were not normally distributed, non-parametric tests were used including Mann Whitney and Spearman's rho correlation. Regression analysis was used for normally distributed variables.

3 Results

3.1 Demographics. The sample was composed of 621 (55.25%) boys and 503 (44.75%) girls. The age range of the study sample was 11 – 18 years with median age of 14 years (SD = 1.75). Fathers of 101 (8.98%) participants (41 girls) were employed in the army. The majority of participants were Muslim, Pakistani by birth and single. Of those who were not residing with their parents, 4% were residing in hostel accommodation. For majority of the participants, the father was the primary bread earner and the mother was a home maker. Over half of the sample was from low affluent families. See Table 1 for details.

INSERT TABLE 1

3.2 Indicators of mental health. Mean score on depression was 6.05 (SD = 3.31) and anxiety was 7.91 (SD = 4.0). Table 2 shows frequency and percentage of participants who were categorised as depressed or anxious. The mean score on psychological, physical and relationship well-being was 34.66 (SD = 6.78), 19.50 (SD = 4.78) and 11.63 (SD = 2.71), respectively, with an overall mean well-being score of 65.79 (SD = 12.84) from an overall range of 23-92 scores.

Reported symptoms of depression correlated positively with anxiety (r_s = 0.32, p < 0.01). Increase in depressive and anxiety symptoms was significantly correlated with poor well-being (r_s = -0.50, p < 0.01; r_s = -0.37; p < 0.01 respectively) in the sample.

INSERT TABLE 2

3.2.1 Gender and mental health. Table 2 reflects rates of depression and anxiety symptoms among boys and girls in the current sample. Rates of anxiety differed by gender with higher anxiety symptoms among girls. There was no gender difference for depression, whereas psychological well-being was significantly higher in boys than girls.

3.2.2 Age and mental health. Age was significantly negatively correlated with depression but the correlation with anxiety was not significant (see Table 3). Significantly higher levels of well-being were reported by older participants.

INSERT TABLE 3

Linear regression analysis was carried out to examine the association between mental health variables and interaction between age and gender. 1.2% variance in depressive symptoms was explained by the interaction between age and gender (b =0.06, F (1, 1120) =2.30, p<0.05). The coefficient for the interaction term was statistically significant; this implies that the slope that predicts the change in depression scores as age increases differs significantly between the boys and girls. For each year increase in age, girls score significantly higher on depression scale than boys. This was not significant for anxiety b = 0.11, t (1120) = 0.78, p =0.43 and well-being b = -0.49, t (1120) = -1.07, p =0.28.

3.2.3 Socio Economic Status (SES) and mental health. The Family Affluence Scale FAS had a mean value of 3.58 (SD = 2.0). The Spearman's rho test (Table 3) confirmed that those from low SES are more likely to have depression, anxiety and low well-being with small to medium effect size (Cohen, 1988).

3.2.4 Life events and mental health. Participants mean score on negative life events was 4.65 (S.D = 3.92). Most commonly reported issues were: problems keeping up with school work (12.7%), illness/accident in family (21.9%) and close friends (15.4%), serious fights /arguments with friends (16.5%), death of someone close (37.7%).

Correlations between the participants' total score on negative life events and depressive and anxious symptoms were significant. Furthermore, those experiencing more negative life events had low scores on well-being (See Table 3). It should be noted that the coefficients of these associations were weak.

Participant's mental health was not significantly correlated with their relationship status, living arrangement, and parent's occupation.

4 Discussion

Rates of depression (17.2%) and anxiety (21.4%) found in the current study were slightly higher than the ones reported in Western literature among community dwelling adolescents which in case of anxiety ranges between 15-20% (Beesdo et al., 2009) and has been reported to be 4-5% in case of depression (Costello, Erkanli, & Angold, 2006). However, these rates are lower than the prevalence of psychological distress reported among Pakistani adults which is estimated to be 34% (Mirza & Jenkins, 2004). This may be attributed to measurement differences and cultural factors. Although there are logistic advantages of screening tools; they are criticized for having a higher chance of false positive results which makes the burden of disease look higher (Thombs et al., 2012). Furthermore, culture determines many aspects of an individual's life which are likely to be associated with mental disorders such as developmental context, parenting practices, and temperaments etc. (Leighton & Hughes, 2005). Although, the present study used instruments with strong psychometric properties, we cannot rule out the possibility that the higher prevalence of depression and anxiety reported here is not an artefact of the inherent limitation in the use of self-reported screening tools.

In the present study, the overall well-being scores (65.79) were higher than the ones reported by adults in UK (54.56) (Kinderman et al., 2011). Whereas, psychological and physical well-being sub-scale scores were slightly lower. The fact that both symptom groups (depression, and anxiety) and well-being are higher in this sample is surprising. Keyes and Lopez (2002) described people having higher rates of mental distress but reporting high well-being as "struggling". The argument suggests that the struggling group self-manages their mental illness and shows resilience. They do this through framing their mental illness which involves giving personally satisfactory meaning to their illness which allows them to be responsible to manage it through seeking help and support from others when necessary (Slade, 2010). This explanation needs to be explored further to better understand why Pakistani adolescents, despite having higher prevalence of depression and anxiety, report better well-being. Perhaps there are elements within the cultural, parental or individual domains that permit them to perceive satisfaction in life regardless of their symptoms of anxiety and depression. There might be dimensions within this construct that merge with the religious and cultural ethos of Pakistan where things are to be considered "alright" despite the anguish or pain (AlKhuli, 2006). This requires further exploration in the Pakistani cultural context and will be helpful in designing indigenous interventions. Furthermore, only a few studies have focused on measuring mental health both in the scope of well-being and symptoms of illness. Including both measures, present results that can facilitate the integration of interventions focusing both on reducing mood related symptoms and enhancing psychological well-being among young people.

We did not find significant gender differences in physical, relationship and total well-being. Past evidence on association between gender and well-being also shows contradictory findings (Abbu-Rayya, 2005; Roothman et al., 2003). In the present study boys reported higher scores on the psychological component of well-being. Similar results have been reported in a

study exploring well-being among 12-18 years old school going adolescents in Northern areas of Pakistan (Khan, Taghdisi, & Nourijelyani, 2015). The present study found support for the higher rates of anxiety among girls replicating consistent findings in literature (Beesdo et al., 2009; White et al., 1999). Although depression has been frequently associated with female gender (Piccinelli & Wilkinson, 2000; Kessler, 2003; Wang et al., 2010; Anderson et al., 1987; Cohen et al., 1993; Essau et al., 2000); in the present study, despite girls reporting higher scores on depression this association was not statistically significant. Although literature indicats female vulnerability to depression, the size of this effect has varied considerably (Nolen-Hoeksema, 2001). The results of the present study offer an explorative opening. This area needs further investigation as it will advance our understanding of higher rates of depression in females across samples and the causes of depression in general. A plausible explanation could be that gender alone does not predict depression in adolescence; it interacts with age. This implies that girls in a particular phase of adolescence are more likely to be depressed than their male counterparts. This was consistent with the present sample where an increase in age among females made them more vulnerable to depression. Past research substantiated these findings (Cyranowski et al., 2000) and are significant in understanding the course of depression. Future research is recommended to examine factors which make Pakistani adolescent girls more vulnerable to depressive symptoms and whether these factors are consistent with the aspects reported in western literature. Establishing this pathway would further the investigation towards designing interventions for youth.

In this study, older adolescents scored significantly lower on depression suggesting that early adolescents are at higher risk. This is in line with the previous research examining prevalence rates of depression and anxiety across developmental stages of adolescence (Hoek et al., 2012; Peleg, 2012) but contradicts Whiteford et al. 2013 who reported a positive association between age and poor mental health. There was no association between

participant's anxiety scores and their age. Similar findings have been reported by White et al. (1999) in their study validating HADS among an adolescent sample.

There is consistent evidence supporting the association between low SES and the susceptibility for depression, anxiety and low well-being (Lemstra et al., 2008), the results of this study support these findings. Our study also supports an association between negative life events and mental health. Negative life event has been an established correlate for anxiety, depression and poor well-being among adolescents both in cross-sectional (Beesdo et al., 2009) and longitudinal studies (McLaughlin et al., 2009; Pine et al., 2002). In Pakistan it is perhaps a phenomenon that needs to be further explored given the current socio-political context of terrorism and unrest. Particularly, given the socio-cultural stress that most children and adolescents have to inevitably endure, be it through personal experience or vicariously, these collective or individual life events may make this population exceptionally vulnerable and at risk. This study is one of the very few pioneering research in the field of adolescents' mental health in Pakistan and carries long term implications in the context of mental health of Pakistani adolescents.

There are some limitations to the study that should be addressed in future investigations. The sample was comprised of predominantly urban adolescents from a large city in Pakistan from one type of schools. Therefore, the generalizability of these results to a rural sample is not known. Future studies should incorporate the use of structured interviews to validate the prevalence rates reported in this research. Despite being well established measures in West (see methods), reliabilities of some of the Urdu versions of the scales used in this study were also weak, therefore, the results should be generalized with caution. The data was not stratified according to the SES and age which may limit the generalizability of the results; however, effort was put into recruiting equal sample within different categories of gender and age.

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Table 1

Characteristics of the study sample (n=1124)

		f	%
Religion	Islam	1109	98.67
	Other	15	1.33
Country of birth	Pakistan	1116	99.29
	Others	8	0.71
Relationship Status	Single	1098	97.7
	Engaged	26	2.3
Living arrangement	Both parents	943	83.9
	Single parent	97	8.63
	Others	84	7.47
Father's occupational status	Employed	1062	94.5
	Unemployed	5	0.44
	Retired	34	3.02
	Deceased	23	2.04
Mother's occupational Status	Employed	73	6.49
	Unemployed	1043	92.8
	Retired	0	0
	Deceased	8	0.71
Family Affluence	Low	569	50.6
	Medium	461	41
	High	94	8.4

Table 2

Difference in rates of depression, anxiety and well-being across gender (n = 1124)

Mental health problem	Category	Boys *f* (%)	Girls *f* (%)	All *f* (%)	χ^2 (p)
Depression					5.58(0.06)
	Non-depressed	349 (56.2)	281 (55.9)	630 (56)	
	Potential depression	153 (24.6)	148 (29.4)	301 (26.8)	
	Probable depression	119 (19.2)	74 (14.7)	193 (17.2)	
Anxiety					19.41(0.001)
	Non-anxious	373 (60.1)	236 (46.9)	609 (54.2)	
	Potential anxiety	131 (21.1)	144 (28.6)	275 (24.5)	
	Probable anxiety	117 (18.8)	123 (24.5)	240 (21.4)	

		Mean rank boys	Mean rank girls	Z(p)
Well-being	Overall Well-being	574.82	547.29	1.41 (0.15)
	Psychological	582.47	537.85	2.29(0.02)
	Physical	566.57	557.47	0.46(0.63)
	Relationship	564.37	560.19	0.21(0.82)

Table 3

Spearman rho's association between continuous demographic indicators and indicators of mental health (n=1124)

	Depression	Anxiety	Well-being
Age	-0.06*	-0.06	0.11**
level of education	-0.13**	-0.09**	0.18**
Family affluence	-0.13**	-0.09**	0.18**
Negative life events	0.12**	0.19**	-0.11**

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).